



# Social Welfare Report

## 01-11 / 2012



- ▶ Additional Social welfare that could be gained with no network constraints:

**3,7 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	36,3 M€
Consumer surplus	-21,8 M€
Congestion Rent	-10,8 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

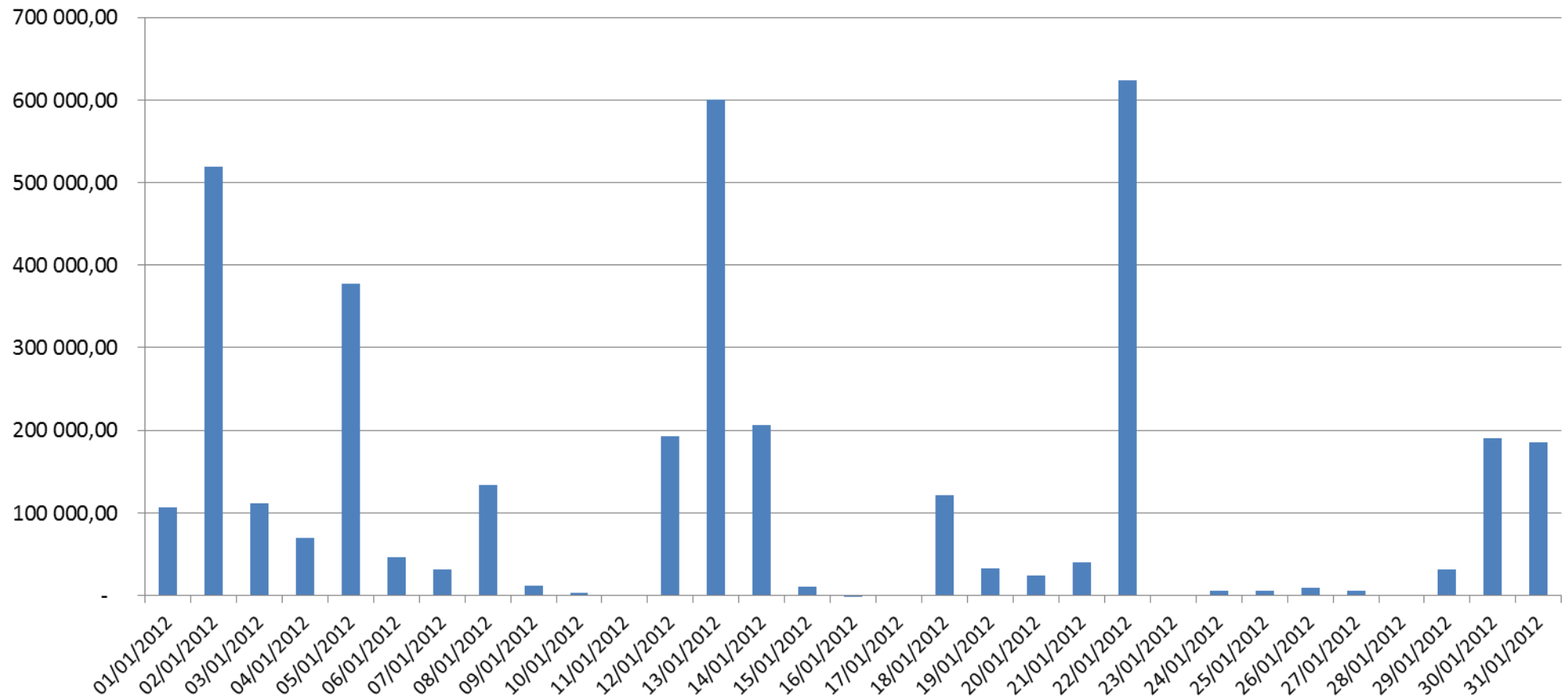
The daily values being a Sum of hourly values.

*In single hours the producer/consumer surplus can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# January 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**31,7 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	57,4 M€
Consumer surplus	45,3 M€
Congestion Rent	-71,0 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

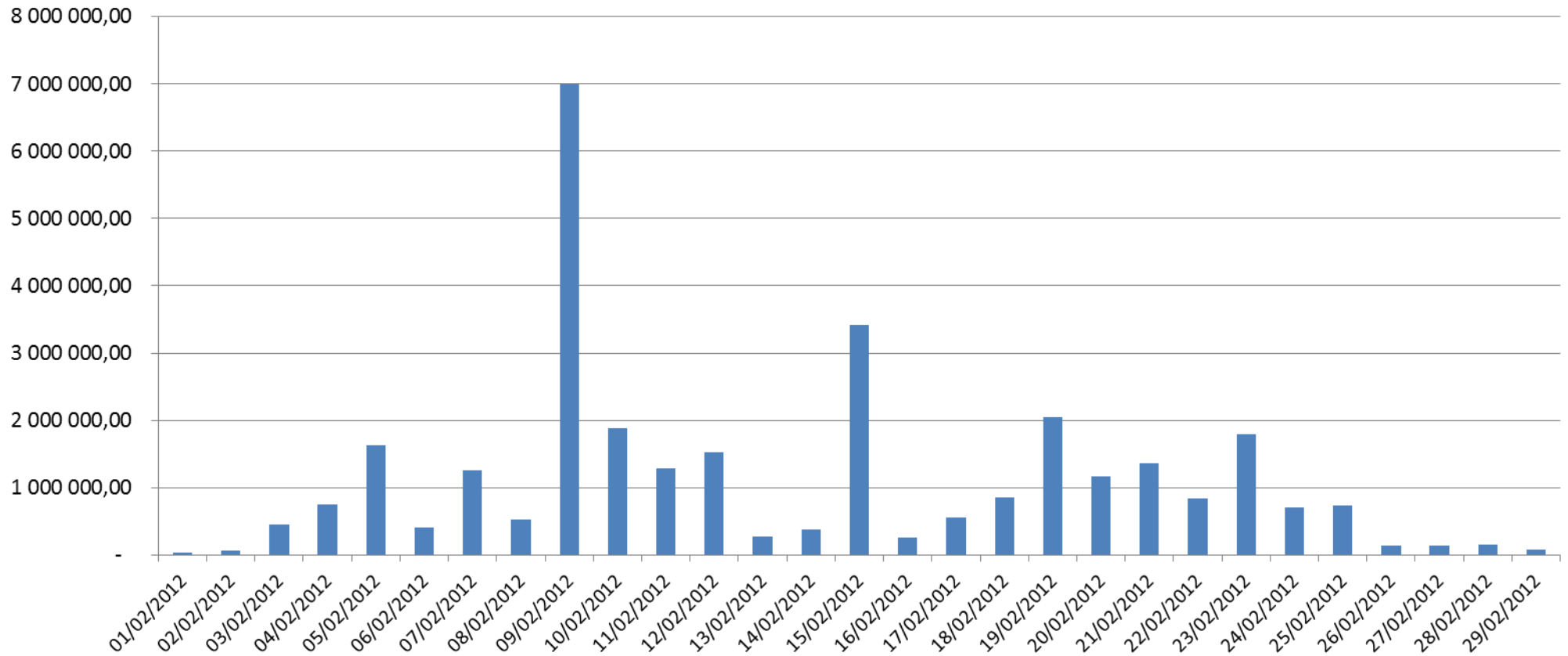
The daily values being a Sum of hourly values.

*In single hours the producer/consumer surplus can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# February 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

4,5 M€

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	34,4 M€
Consumer surplus	-15,3 M€
Congestion Rent	-14,6 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

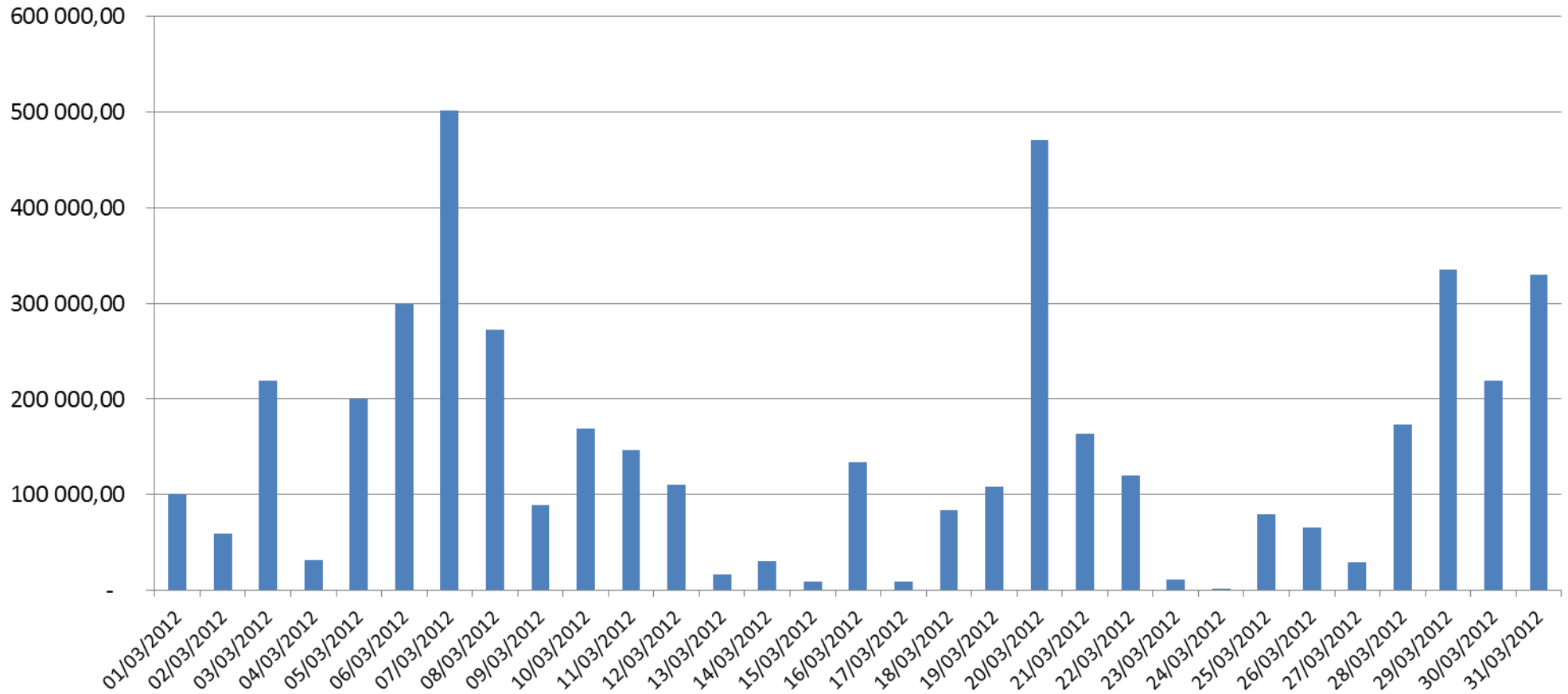
The daily values being a Sum of hourly values.

*In single hours the producer/consumer surplus can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# March 2012



## Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**2,5 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	17,2 M€
Consumer surplus	-4,9 M€
Congestion Rent	-9,8 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

The daily values being a Sum of hourly values.

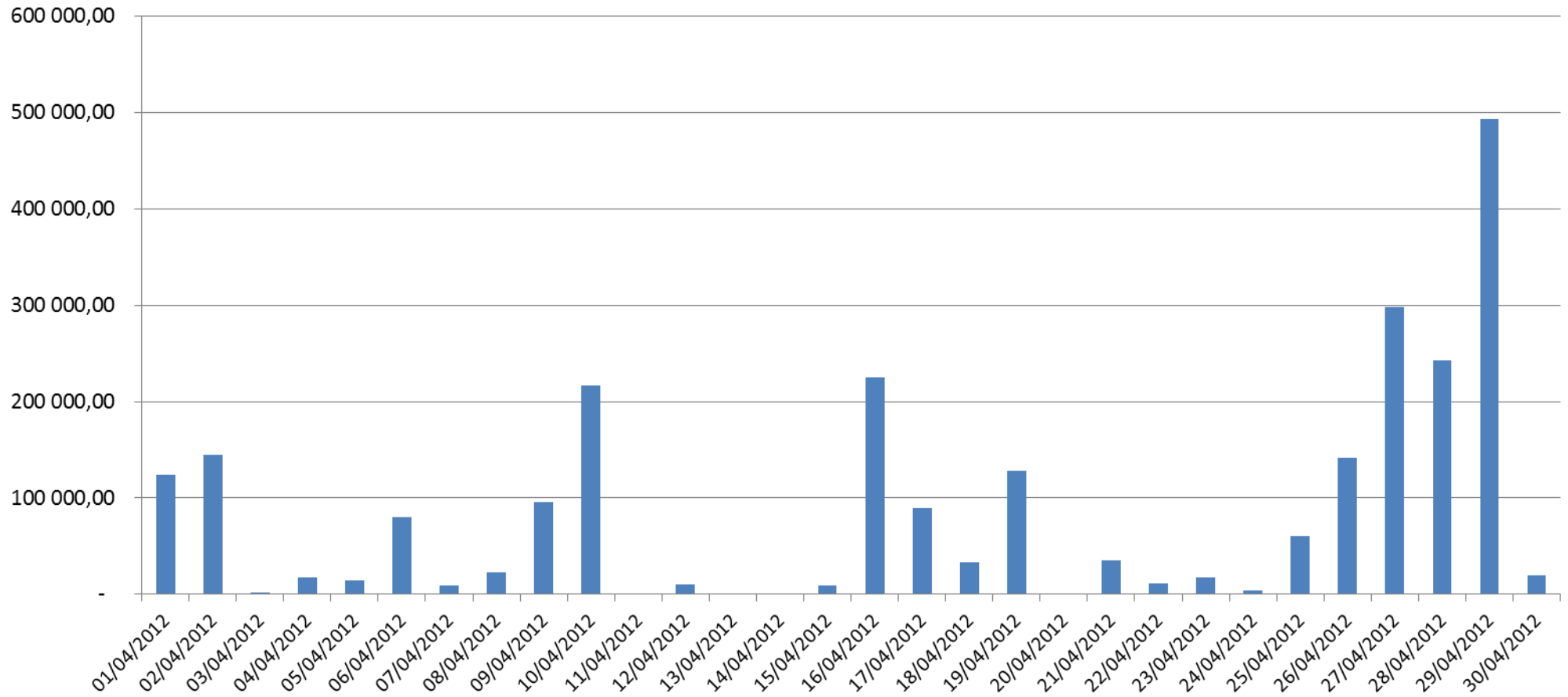
*In single hours the producer/consumer surplus can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*



# April 2012



## Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**5,2 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	20,3 M€
Consumer surplus	3,8 M€
Congestion Rent	-18,9 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

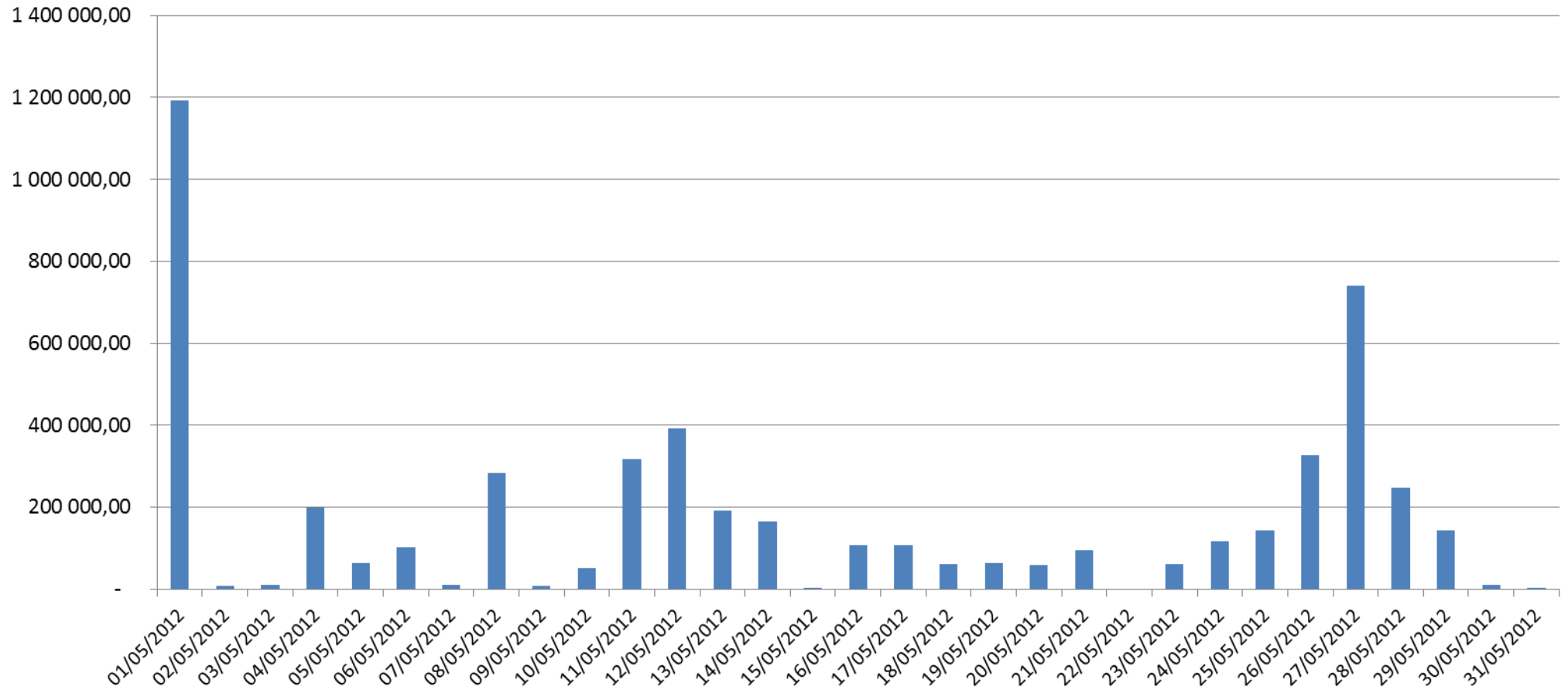
The daily values being a Sum of hourly values.

*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# May 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**3,8 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	21,2 M€
Consumer surplus	-2,0 M€
Congestion Rent	-15,4 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

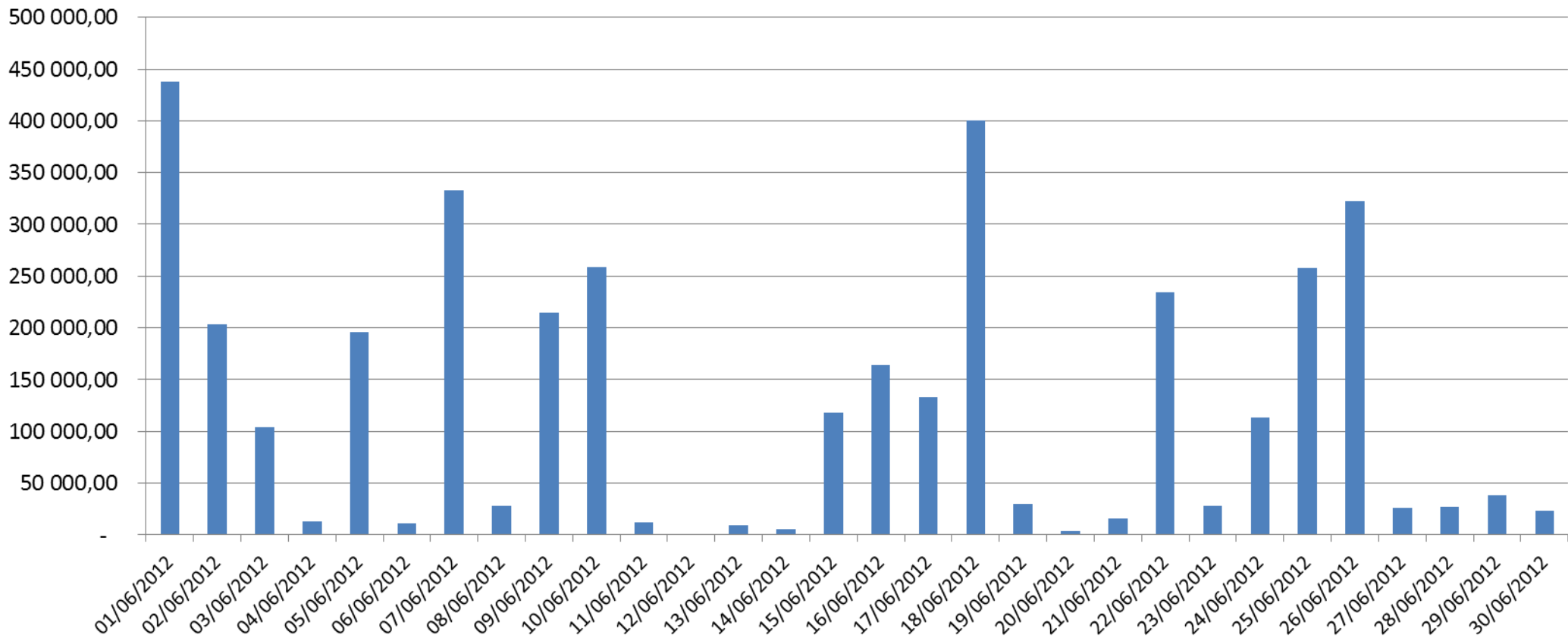
The daily values being a Sum of hourly values.

*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# June 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**1,9 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	11,5 M€
Consumer surplus	-0,1 M€
Congestion Rent	-9,5 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

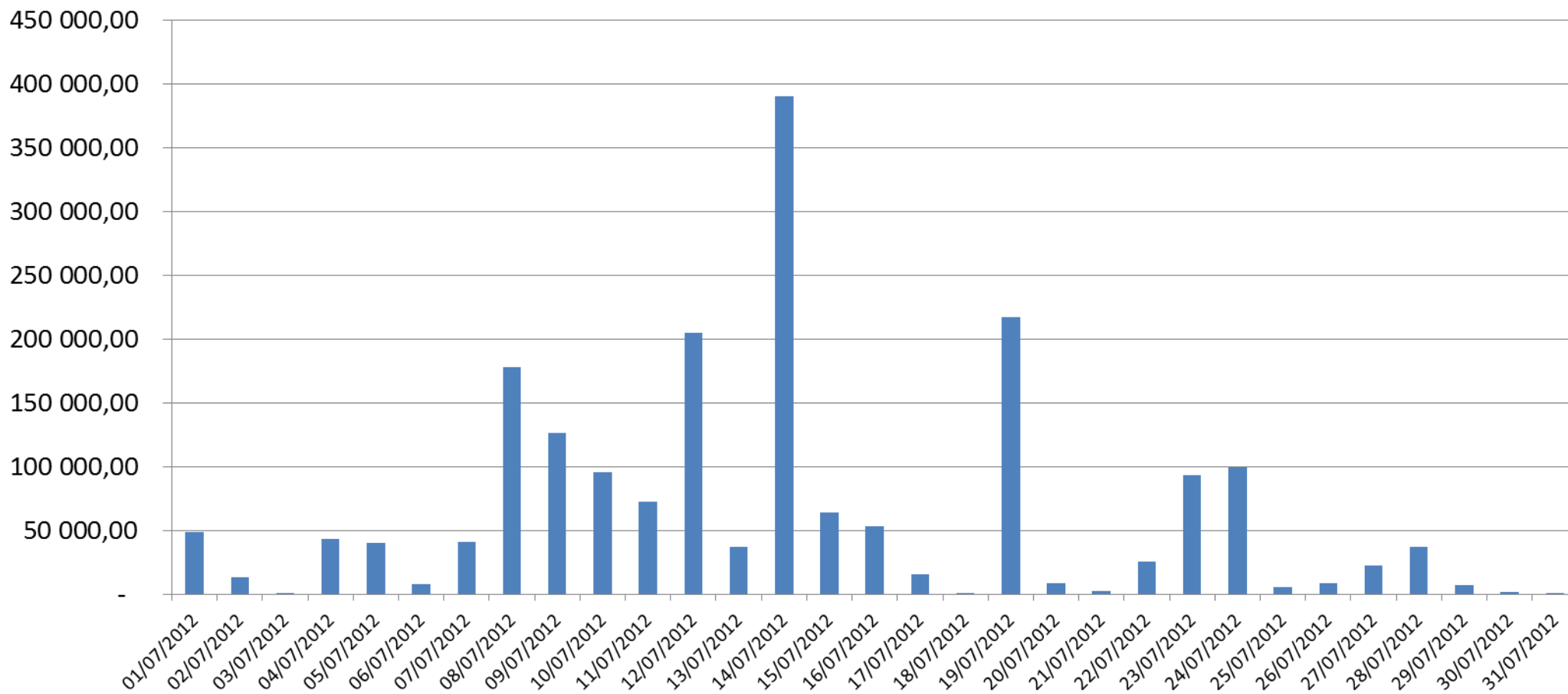
The daily values being a Sum of hourly values.

*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# July 2012



## Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**1,9 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	10,3 M€
Consumer surplus	-1,1 M€
Congestion Rent	-7,3 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

The daily values being a Sum of hourly values.

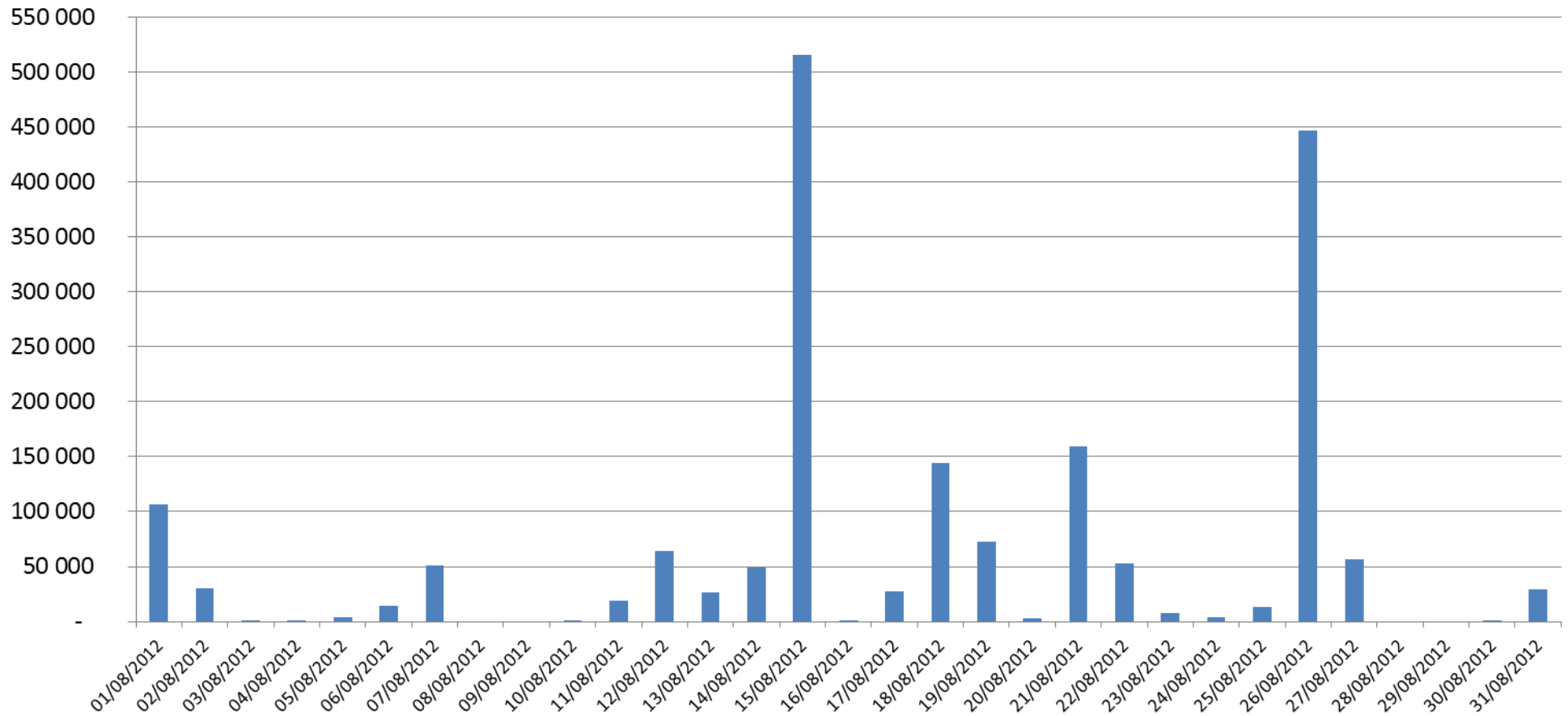
*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*



# August 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**3,2 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	19,7 M€
Consumer surplus	-5,2 M€
Congestion Rent	-11,3 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

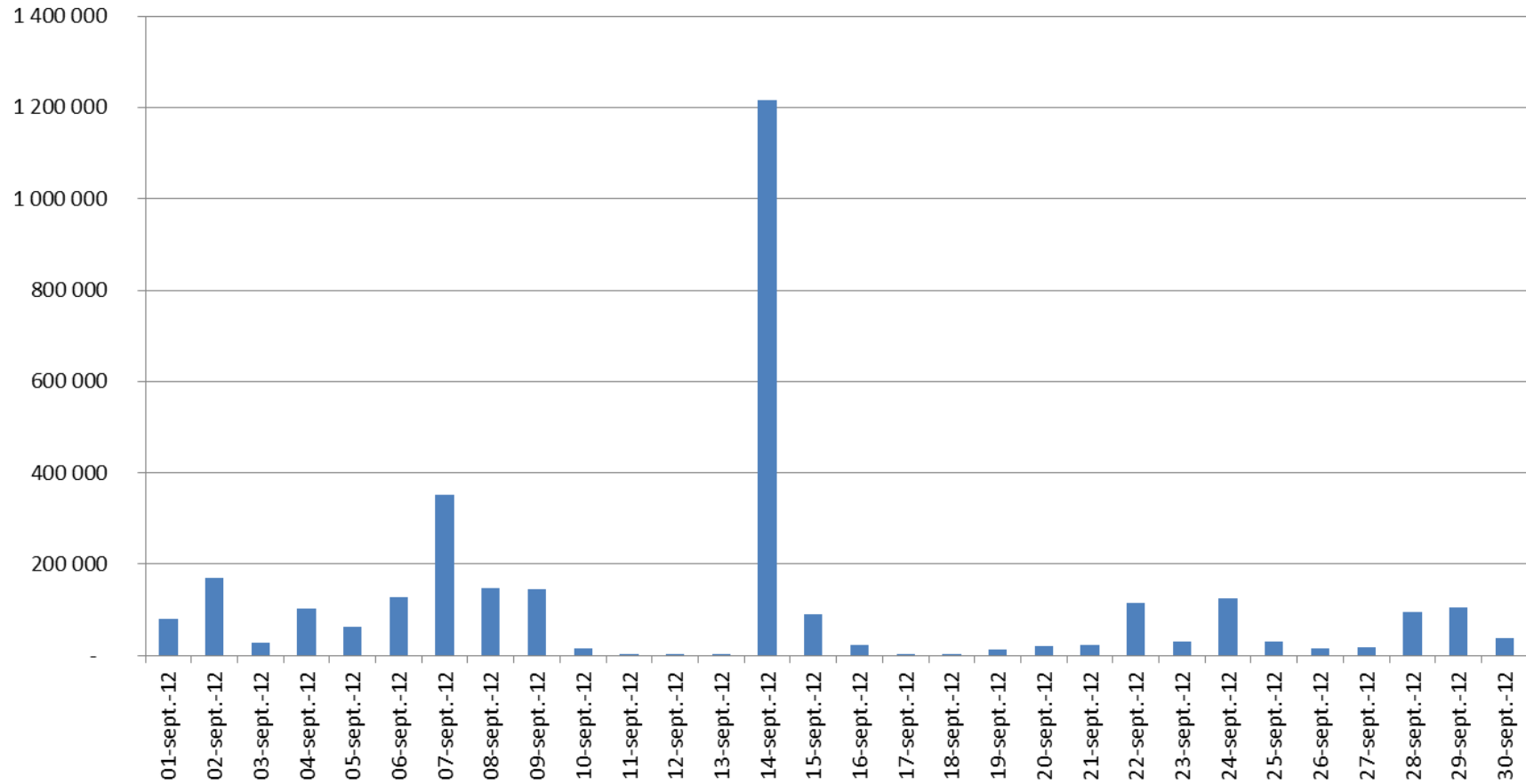
The daily values being a Sum of hourly values.

*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# September 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**10,6 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	52,2 M€
Consumer surplus	-16,1 M€
Congestion Rent	-25,5 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

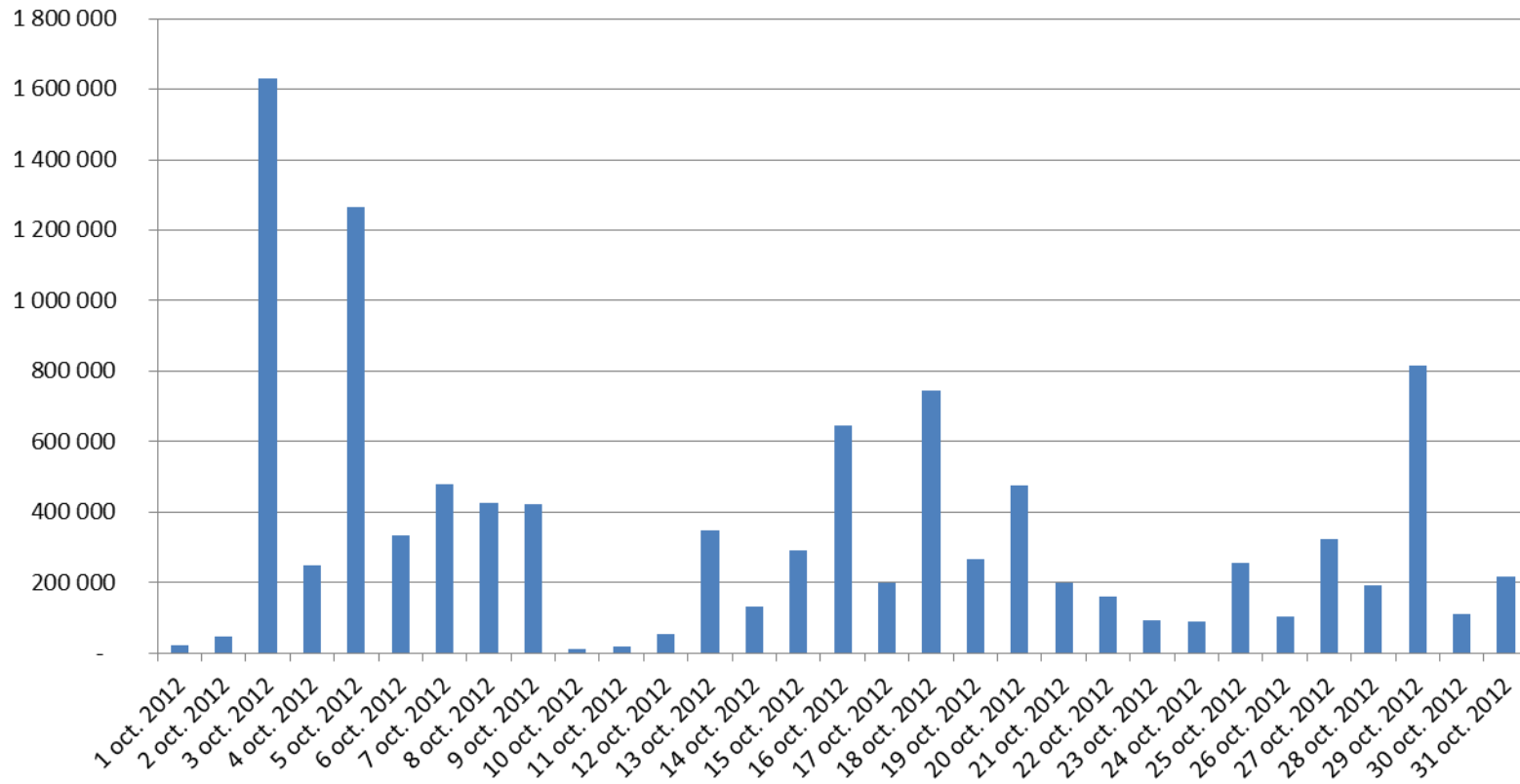
The daily values being a Sum of hourly values.

*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# October 2012



Evolution of social welfare that could be gained with no network constraints





- ▶ Additional Social welfare that could be gained with no network constraints:

**8,3 M€**

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**Social welfare = Producer surplus + Consumer surplus + Congestion rent**

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Producer surplus	36,8 M€
Consumer surplus	-6 M€
Congestion Rent	-22,5 M€

NB: Producer surplus, Consumer surplus and Congestion Rent are calculated as such:

Sum of daily ( Value with  $ATC=\infty$ ) - (Historical value)

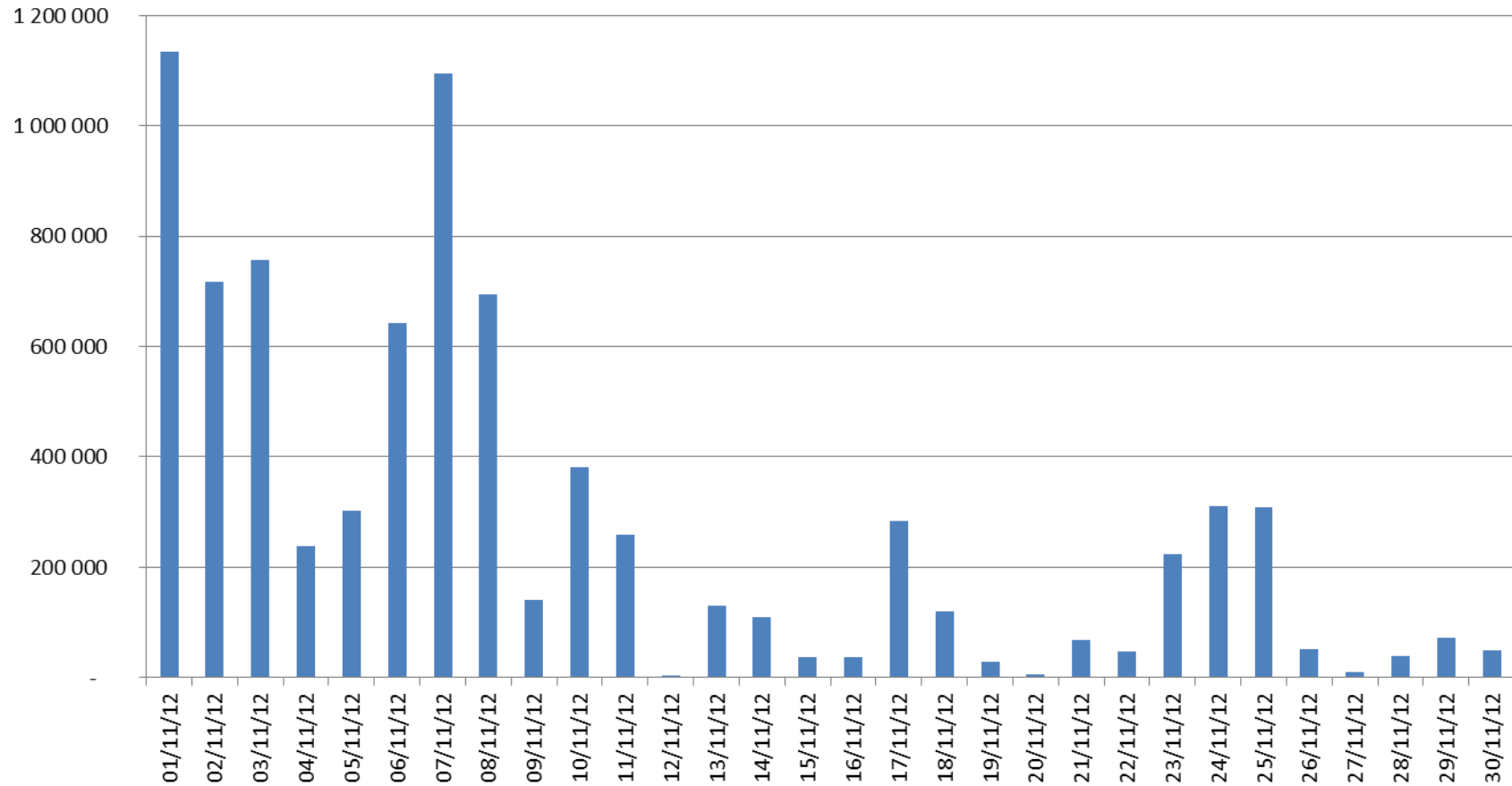
The daily values being a Sum of hourly values.

*In single hours the producer/consumer gain can be positive or negative. The highlighted value presents the sum of all hours of the respective month.*

# November 2012



Evolution of social welfare that could be gained with no network constraints





## ► Definitions / explanations



# Additional Social welfare that could be gained with no network constraints (*Definition/explanation*)



- ▶ The figure shows the additional social welfare that could be gained with no network constraints inside CWE (borders D-NL, NL-B, B-F, D-F) .
- ▶ This key figure is calculated by hourly simulating/ coupling the CWE-region with  $ATC = \infty$  at the borders D-NL, NL-B, B-F, D-F and comparing to real MC-results:
  - Producer surplus= Producer surplus ( $ATC = \infty$ )- Producer surplus(real ATC)
  - Consumer surplus=Consumer surplus ( $ATC = \infty$ )- Consumer surplus(real ATC)
  - Congestion rent= Congestion rent ( $ATC = \infty$ )- congestion rent(real ATC)
- ▶ NB: The simulations are made with ITVC flows remaining identical.

## Additional Social welfare that could be gained with no network constraints (*Definition/explanation*)



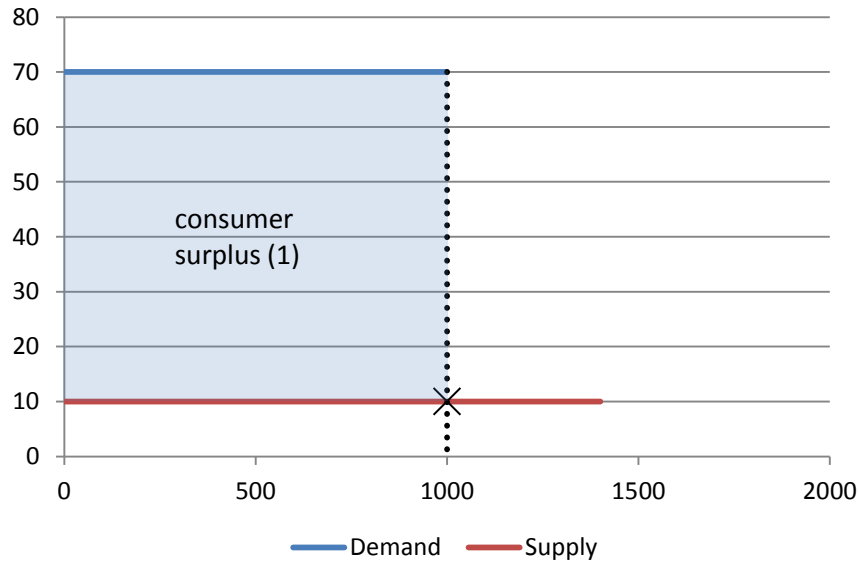
- ▶ The purpose of the welfare reporting is the demonstration of the benefits of CWE ATC Market Coupling and future CWE FB MC.
- ▶ The monthly publishing of this figure was commonly agreed between the CWE Regulators and the CWE Project. It is one part of the welfare reporting.



- ▶ Examples: *“In single hours the producer/consumer gain can be positive or negative”*

# Decrease in consumer surplus example 1/2

## Two isolated markets (zero capacity)

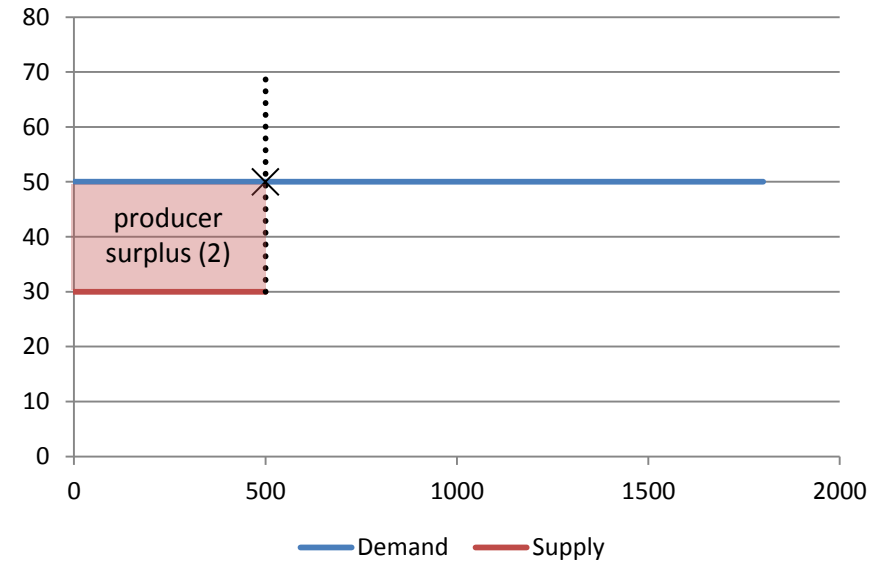


### Area 1

MCV: 1000 MW, MCP: € 10

Consumer surplus: € 60K

Producer surplus: € 0



### Area 2

MCV: 500 MW, MCP: € 50

Consumer surplus: € 0

Producer surplus: € 10K

### Totals

Consumer surplus: € 60K

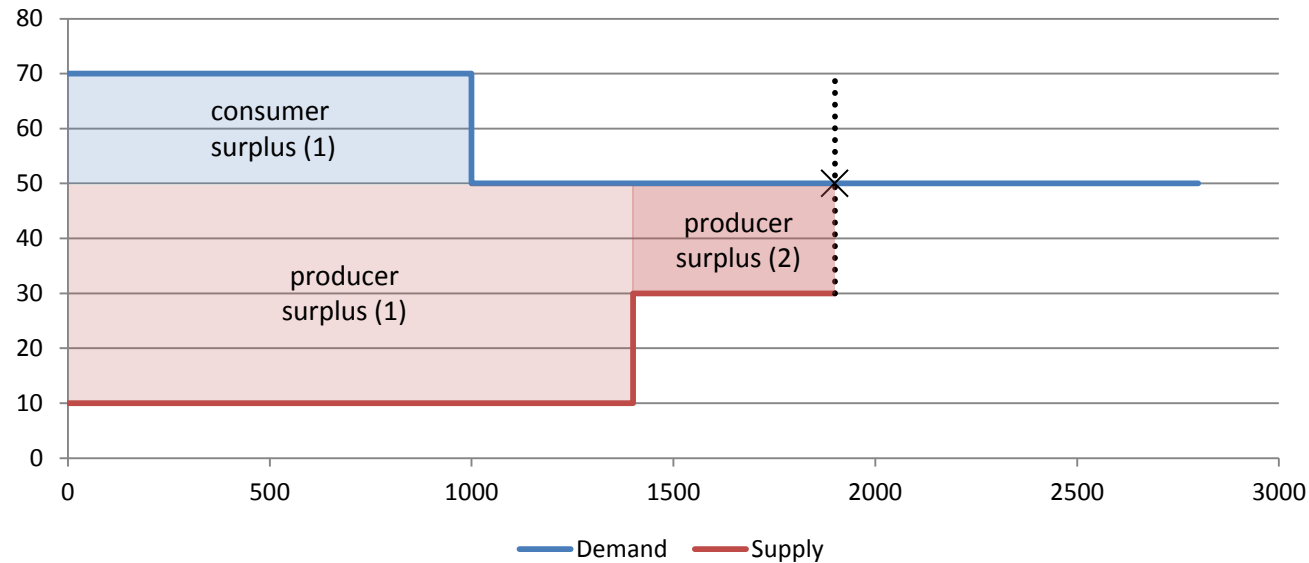
Producer surplus: € 10K

Congestion revenue: € 0

Social welfare: € 70K

# Decrease in consumer surplus example 2/2

## Two coupled markets (infinite capacity)



### Area 1

MCV: 1400 MW, MCP: € 50

Consumer surplus: € 20K

Producer surplus: € 56K

### Area 2

MCV: 500 MW, MCP: € 50

Consumer surplus: € 0

Producer surplus: € 10K

### Totals

Consumer surplus: € 20K (-40K)

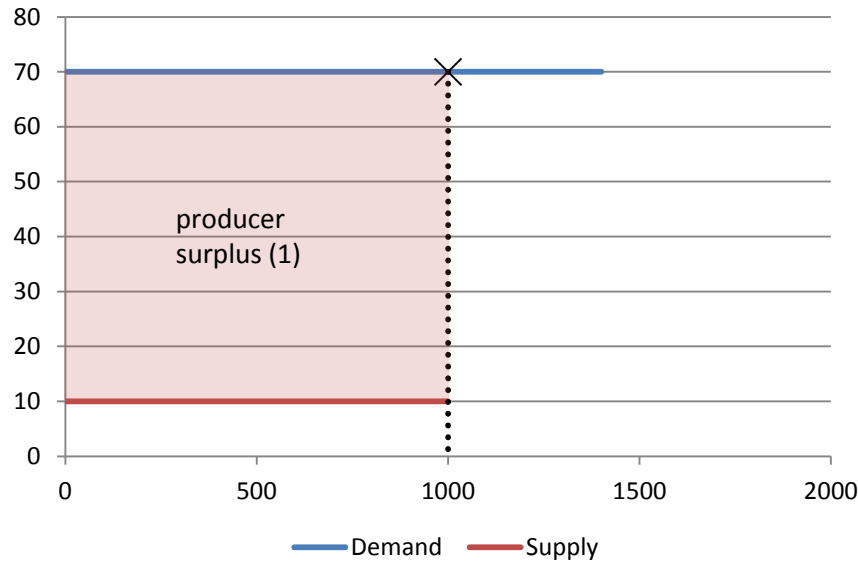
Producer surplus: € 66K (+56K)

Congestion revenue: € 0

Social welfare: € 86K (+16K)

# Decrease in producer surplus example 1/2

## Two isolated markets (zero capacity)

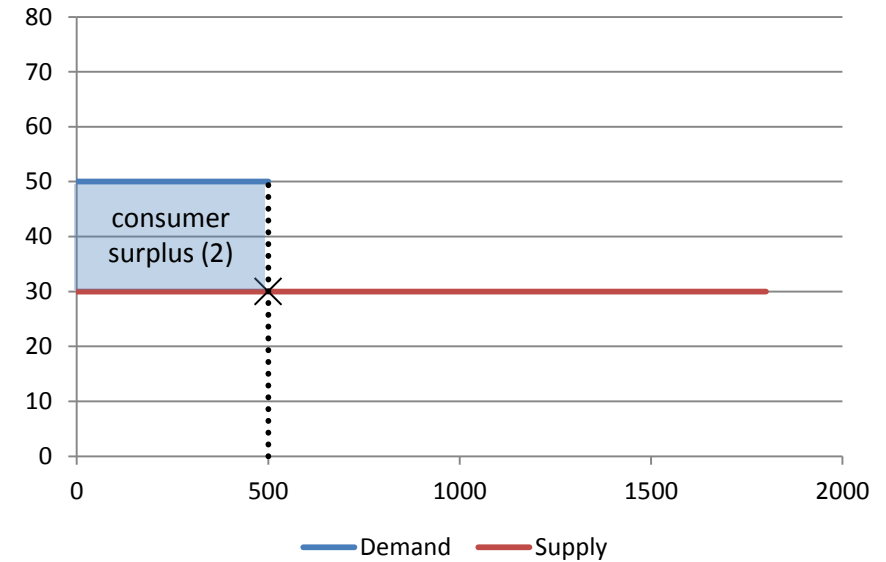


### Area 1

MCV: 1000 MW, MCP: € 70

Consumer surplus: € 0

Producer surplus: € 60K



### Area 2

MCV: 500 MW, MCP: € 30

Consumer surplus: € 10K

Producer surplus: € 0

### Totals

Consumer surplus: € 10K

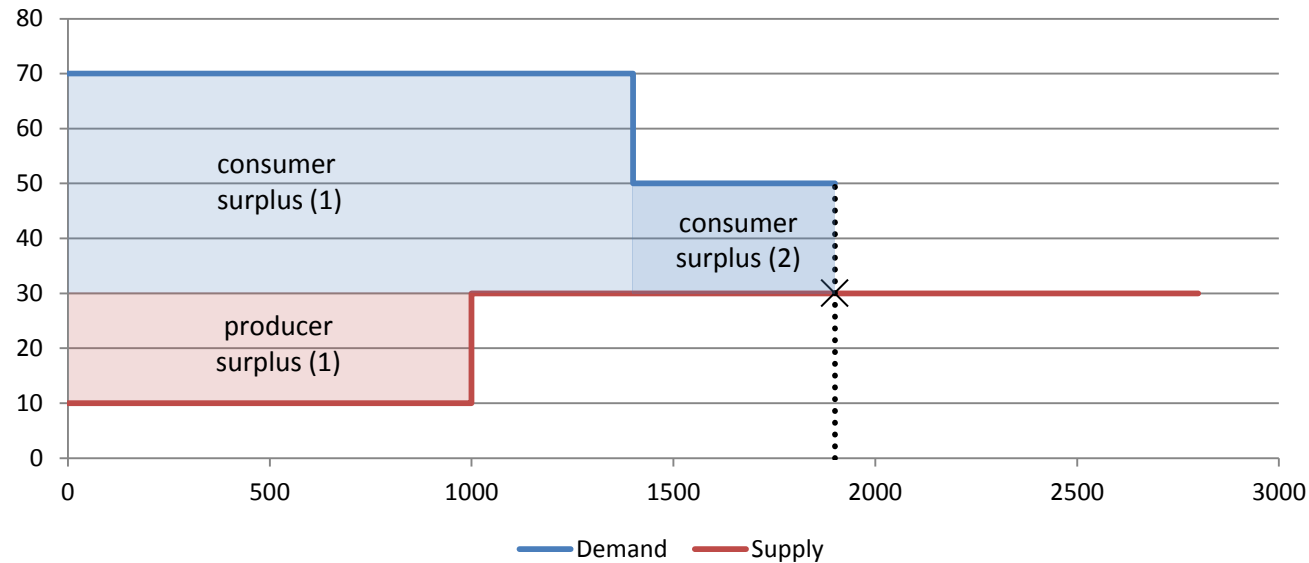
Producer surplus: € 60K

Congestion revenue: € 0

Social welfare: € 70K

# Decrease in producer surplus example 2/2

## Two coupled markets (infinite capacity)



### Area 1

MCV: 1400 MW, MCP: € 30

Consumer surplus: € 56K

Producer surplus: € 20K

### Area 2

MCV: 500 MW, MCP: € 30

Consumer surplus: € 10K

Producer surplus: € 0

### Totals

Consumer surplus: € 66K (+56K)    Congestion revenue: € 0

Producer surplus: € 20K (-40K)    Social welfare: € 86K (+16K)